WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Formulation and Evaluation of Herbal Scrub: A Multifunctional Natural Exfoliator

[1] Miss. Anuja Ashok Lokhande, [2] Miss. Anuja Ashok Lokhande, [3] Dr. Gawade S.P.

[1] Late. Narayandas Bhavandas Chhabada Institute Of Pharmacy Raigaon, Satara. Dist: Satara, Maharashatra. 415020
Email Id: lokhandeanuja1252@gmail.com Mobile No : 7219102067
[2] Late. Narayandas Bhavandas Chhabada Institute Of Pharmacy Raigaon, Satara. Dist: Satara, Maharashatra. 415020
[3] Professor Late Narayandas Bhawandas Chhabada Institute of Pharmacy Raigaon, Tal:Jaoli, Satara. Dist: Satara, Maharashatra. 415020.
Email Id : lokhandeanuja1252@gmail.com Mobile No : 7219102067

1. ABSTRACT :

In recent years, consumer interest in natural and sustainable skincare solutions has grown significantly, driving innovation in the formulation of herbal cosmetic products. This study focuses on the development of a unique, easy-to-make herbal scrub designed to provide comprehensive skin benefits through a synergistic blend of seven natural ingredients: coffee grounds, activated charcoal, honey, sandalwood powder, beeswax, essential oil, and rose water. Each ingredient is carefully selected based on its scientifically supported dermatological properties, creating a formulation that exfoliates, detoxifies, nourishes, and soothes the skin in a single application.

Coffee grounds act as a natural exfoliant, enhancing circulation and promoting skin renewal, while activated charcoal offers deep cleansing and detoxification by binding impurities and unclogging pores. Honey contributes moisture retention and antibacterial protection, making the scrub suitable for various skin types, including sensitive and acne-prone skin. Sandalwood powder provides anti-inflammatory benefits and a calming herbal aroma, while beeswax functions as a natural emollient that locks in moisture and gives the scrub a creamy, spreadable texture. The addition of essential oils (such as sandalwood, rose, or lavender) enhances the therapeutic properties and sensory experience, and rose water offers a gentle astringent effect that tones and refreshes the skin.

The preparation method is straightforward, requiring minimal equipment, making it ideal for home use, educational projects, or small-scale herbal skincare startups.

Keywords : Herbal Scrub, Natural Skincare, Coffee Grounds, Activated Charcoal, Beeswax, Sandalwood Powder, Rose Water, Exfoliation, Moisturizing, Skincare Formulation

2. INTRODUCTION

In the contemporary skincare and cosmetics industry, there is an increasing shift toward natural and herbal formulations as consumers become more aware of the potential side effects of synthetic chemicals. Herbal and DIY skincare products offer a safer, eco-friendly alternative that aligns with the growing trends of sustainability, minimalism, and holistic wellness Traditional exfoliators often include harsh abrasives and preservatives that may irritate the skin or disrupt its natural balance. This project explores a novel herbal scrub that combines the benefits of coffee grounds, activated charcoal, honey, sandalwood powder, beeswax, essential oils, and rose water—all ingredients known for their dermatological and therapeutic properties.

Each ingredient in the proposed formulation contributes to a specific aspect of skin health. Coffee grounds provide mechanical exfoliation and antioxidant protection. Activated charcoal is widely recognized for its detoxifying and pore-cleansing ability. Honey is a natural humectant and antibacterial agent, widely used in Ayurvedic and modern skincare. Sandalwood powder, traditionally used in Indian herbal medicine, has calming and anti-inflammatory effects. Beeswax is a natural emollient that offers a protective barrier on the skin, while essential oils and rose water elevate the sensory experience and offer additional skin-enhancing benefits.

The aim of this research paper is to explore the rationale behind each ingredient, outline the formulation and preparation steps, assess the benefits of regular usage, and highlight the scrub's potential as a marketable, multipurpose skincare product. By bridging traditional herbal knowledge with modern skincare science, this study aims to present a product that is not only effective but also eco-conscious and consumer-friendly.

3. REVIEW OF LITERATURE

1.Abhishek S Pujari "et al."(2018) The main objective of our research study was to prepare an herbal scrub. In day to day life for both women and men cosmetics plays an important role to beatifying and altering the appearance of the skin.

2. Priyanka Ghadage "et al."(2020) The main objective of research study was to formulate an herbal scrub using natural ingredients incorporated into gel. In today's life for both women and men cosmetics plays an important role to beautifying and altering the appearance of skin

3.Kusniah Naim "et al.", (2020) Rice has been known to be used in traditional cosmetic application and can be valued added by several by products such as potato and orange peel incorporation. The peel which rich in antioxidants was formed into flour to make it easier to blend into rice flour based face-scrub.

4. Rupal Jani "et al." (2022) The research aimed to preoduce an herbal facial scrub. The majority of times, the skin on the face is in regular conact with dirt, pollution and other contaminants. Coffee contain a lot of anti-oxidants properties in addition, coffee ground have a different aroma and coarse grain and can be used to remove dirt skin cells that have died. The scrub was made with a simple mixing procedure and a variety of materials, including coffee beans, nutmeg, masoor dal, corn starch, and coconut oil mixed beeswax.

5. Ligaya Taliana "et al. " (2020) Air pollution and UV rays are Sources of free radicals that are harmful to body. Radicals produced in the body. can be neutralized by antioxidant that come from the body under normal circumstances, free facial scrub is a skin care. [8]cosmetic product that contains coarse granules or so called abrasive cosmetics which functions to remove dead skin cells and nourish the skin.

4. AIM AND OBJECTIVES

Aim

The primary aim of this project is to formulate and evaluate a unique, easy-to-make herbal facial and body scrub using natural ingredients—coffee grounds, activated charcoal, honey, sandalwood powder, beeswax, essential oils, and rose water—that together offer exfoliating, detoxifying, moisturizing, and soothing benefits to the skin

Objectives

1. To select and justify natural ingredients based on their skin-related benefits, ensuring each component contributes specific functional properties such as exfoliation, hydration, detoxification, or soothing.
2. To develop a standardized formulation method that ensures consistency, stability, and effectiveness of the scrub while maintaining ease of preparation for DIY users and small-scale herbal cosmetic producers.
3. To explore the synergistic effects of combining ingredients like coffee and charcoal for exfoliation and detoxification, honey and beeswax for moisturization, and sandalwood and rose water for soothing and toning.
4. To ensure the safety and suitability of the formulation for different skin types by recommending patch testing and providing appropriate usage guidelines.
5. To explore the customization potential of the formulation by suggesting alternative natural ingredients for different user preferences or skin conditions.

5. INGREDIENTS USE IN FORMULATION

1.) Coffee

Family: Rubiaceae

Biological Source: Seeds of *Coffea arabica*, *Coffea canephora* (Robusta), or *Coffea liberica*

Chemical Constituents: Caffeine (primary active compound) ,Chlorogenic acids, Trigonelline, Diterpenes (Cafestol and Kahweol), Polyphenols

(fig.1)

Uses:

a) Exfoliant (in scrubs)

b) Stimulates circulation
c) Antioxidant properties

2.) Activated Charcoal

Biological Source: Produced from carbonaceous substances such as wood, coconut shells, peat, and coal.
Chemical Constituents: Primarily carbon ,Adsorbed gases and chemicals from the activation process

(fig.2)

Uses:

a) Detoxification (adsorbs impurities)
b) Deep pore cleansing
c) Treating acne

3.) Honey

Common Name: Honey
Biological Source: Nectar and pollen collected and modified by honeybees (*Apis mellifera*)
Chemical Constituents: Sugars (primarily fructose and glucose) , Amino acids , Vitamins , Minerals , Enzymes , Antioxidants (flavonoids and phenolic acids)

(fig.3)

Uses:

a) Humectant (draws moisture to the skin)
b) Antimicrobial properties
c) Soothing and moisturizing

4.) Sandalwood

Common Name: Sandalwood
Family: Santalaceae
Biological Source: Heartwood of *Santalum album*
Chemical Constituents: α-Santalol , β-Santalol ,Santalenes

(fig.4)

Uses:

a) Soothing to the skin
b) Anti-inflammatory properties
c) Aromatic (fragrance)

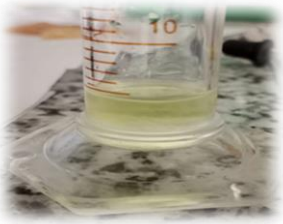
6 . FORMULATION TABLE

Ingredient	Quantity (for 100g)	Function / Benefit
Coffee Grounds	**20g**	**Exfoliates dead skin, improves circulation, and may reduce the appearance of cellulite**
Activated Charcoal	**5g**	**Detoxifies skin, unclogs pores, and reduces acne**
Honey	**15g**	**Moisturizes, soothes, and provides antibacterial properties**
Sandalwood Powder	**5g**	**Soothes irritated skin, reduces inflammation, and adds a pleasant herbal fragrance**
Beeswax	**6g**	**Acts as a natural emollient and gives the scrub a creamy consistency**
Essential Oil	**q.s.**	**Enhances aroma, promotes skin wellness, and supports relaxation**
Rose Water	**q.s.**	**Hydrates, tones, and refreshes the skin**

(Table no.1)

7. STEPS FOR FORMULATION OF OF HERBAL SCRUB (FOR 100G)

Step 1: Melt the Beeswax- Using a double boiler or microwave, gently melt 6g of beeswax until it becomes liquid. Allow it to cool slightly (but not solidify) before mixing with the other ingredients.



(fig.5)

Step 2: Mix Wet Ingredients- In a clean mixing bowl, combine the 6g of melted beeswax, 15g of honey, and 12g of rose water. Stir well to create a smooth, homogenous base.

Step 3: Add Dry Ingredients- Add 20g of coffee grounds, 5g of activated charcoal, and 5g of sandalwood powder to the wet mixture. Mix thoroughly until a thick, gritty paste forms.

Step 4: Incorporate Essential Oils- Add 10 drops (approx. 0.5g) of your chosen essential oil (e.g., sandalwood, rose, or lavender). Mix well to ensure the oil is fully incorporated, enhancing both the fragrance and therapeutic properties.

Step 5: Adjust Consistency

i. If the scrub is too thick: Add a little more rose water (around 2–3g).

ii. If the scrub is too runny: Add extra coffee grounds or sandalwood powder (in small increments) until the desired consistency is achieved.

(fig.6)

Step 6: Storage- Transfer the scrub into a clean, dry, airtight glass jar. Label the jar if needed, and store it in a cool, dry place away from direct sunlight. The scrub is best used within 2 months for optimal freshness.

8. EVALUATION PARAMETERS

A. Organoleptic Evaluation

Parameter	Observation
Color	**Dark brown to black**
Texture	**Smooth base with uniform granular exfoliant**
Aroma	**Pleasant, mild fragrance**
Appearance	**Homogeneous, slightly glossy with creamy feel**

(Table no.2)

B. Spreadability:

- **Method**: A fixed amount of scrub was placed between two glass slides, and the diameter of the spread was measured. Spreadability was smooth and even, indicating good user application experience.

(f(fig.7)

C. pH Test

- **Method**: 1 gram of scrub was mixed with 10 ml of distilled water and tested using a pH strip. The pH was found to be **5.5–6.0**, which is ideal and skin-friendly, making it suitable for facial use.

D. Stability Test

- *Conditions*: The scrub was stored in a glass jar at room temperature (25°C) and observed for any changes in texture, fragrance, or appearance over time.
- *Observations*:

a) The product remained homogeneous, with no separation of ingredients.
b) The texture stayed consistent, maintaining its creamy consistency.
c) The fragrance retained its pleasant aroma without any signs of degradation or sourness.
d) No fungal or microbial growth was observed, indicating good microbial stability.

E. Washability

Wash and rinsed off with lukewarm water, Cheak leaving no greasy or sticky residue. Skin felt clean, soft, and hydrated.

F. Skin Irritation Test (Patch Test)

Method: Small amount applied to the inner forearm of volunteers and observed for 24 hours. redness, itching, or irritation observed in any participant, suggesting good skin compatibility.

9. OBSERVATIONS FROM FORMULATION

- **Texture:** Smooth with gentle exfoliating granules
- **Color:** Deep brown to black
- **Aroma:** Pleasant, mildly floral and earthy
- **Feel on Skin:** Gentle exfoliation with a moisturizing after-effect

Ingredient	Observed Benefit
Coffee Grounds	Provided physical exfoliation, left skin smoother and improved surface circulation
Activated Charcoal	Helped cleanse pores deeply; users noted fewer blackheads and oiliness
Honey	Made skin feel hydrated and soft post-use
Sandalwood Powder	Reduced redness, gave a calm, soothing effect especially on sensitive skin
Beeswax	Locked in moisture; skin felt protected without being greasy
Essential Oil	Boosted mood and added aromatherapeutic value
Rose Water	Toned and refreshed the skin, enhanced the overall sensory experience

(Table no.3)

C. User Feedback (Trial Use)

A small group of volunteers 5 individuals with varying skin types tested the product over two weeks. Feedback was collected informally:

a) All participants reported noticeably smoother skin after the use.
b) No irritation or allergic reactions were reported, confirming good tolerance across different skin types.
c) Users with dry skin appreciated the moisturizing effect of honey and beeswax

Before Application

After Application

10. RESULT

Color	**Dark brown to black**
Texture	**Smooth base with uniform granular exfoliant**
Aroma	**Pleasant, mild fragrance**
Appearance	**Homogeneous, slightly glossy with creamy feel**

(Table no. 4)

(Fig.5)

A. pH Test: The pH was found to be **5.8**, which is ideal and skin-friendly, making it suitable for facial use.
B. Washability: Easily rinsed off with lukewarm water, leaving no greasy or sticky residue. Skin felt clean, soft, and hydrated

C. Spreadability: Spreadability was smooth and even, indicating good user application experience

E. Skin Irritation Test (Patch Test): : No redness, itching, or irritation observed in any participant, suggesting good skin compatibility

Discussion

This herbal scrub successfully combines the exfoliating power of coffee and charcoal with the healing, moisturizing, and soothing properties of honey, sandalwood, beeswax, and rose water. The result is a multi-action skincare product suitable for both face and body. The versatility and customizability of this scrub (through varied essential oils or herbal powders) also increase its appeal. Additionally, the absence of synthetic preservatives and harmful chemicals makes it ideal for natural skincare enthusiasts, while its sensory attributes make it suitable

11. SUMMARY

This research focused on formulating a natural herbal scrub using a blend of coffee grounds, activated charcoal, honey, sandalwood powder, beeswax, essential oils, and rose water. Each ingredient was selected for its unique skin benefits, such as exfoliation, detoxification, hydration, and soothing

properties. The scrub was easy to make, requiring minimal equipment and readily available natural ingredients. The product was evaluated for its sensory characteristics, pH, spreadability, and skin safety, with results indicating a well-balanced, effective, and skin-friendly product. User feedback was highly positive, with participants reporting smoother skin, reduced oiliness, and no irritation. The scrub demonstrated good stability, maintaining its texture and fragrance over time.

This herbal scrub is ideal for those seeking natural skincare solutions and presents opportunities for personal use or small-scale commercial production

12. CONCLUSION

This research project successfully demonstrated the formulation of a natural herbal scrub using a thoughtful combination of coffee grounds, activated charcoal, honey, sandalwood powder, beeswax, essential oil, and rose water. The scrub was easy to prepare, required minimal resources, and featured ingredients known for their skin-benefiting properties. The final product provided a balanced exfoliating and moisturizing effect, supported by its creamy yet gritty texture. Evaluation parameters such as organoleptic properties, spreadability, pH, washability, and user feedback confirmed the scrub's efficacy, safety, and user acceptability.User trials reflected high satisfaction, and no adverse reactions were observed, indicating the product's compatibility with various skin types. Its natural composition, appealing texture, and pleasant aroma contributed to an enjoyable user experience, making it suitable for both personal care.

13. REFERENCES

1. Dhanshri Sanjay Kachare Priyanka Ghadage International Journal of Research. 9(7):1- 10,2020
2. V.mjimenzerpatriciaesqivel function and properties of coffee and coffee by. Food research international .2012 46 2. 488-495
3. Patricia Esquivel, Victor M Jimenez ,Food Research International 46 (2), 488495, 2012
4. Amar Surjushe, ReshamVasani, DG Saple Indian journal of dermatology 53 (4), 163, 2008
5. Alan D Klein, Neal S Penneys Journal of the American Academy of Dermatology 18 (4), 714- 720, 1988
6. Bruno Burlando et al. J CosmetDermatol., 18 (4), 714-720, 2013 Dec,
7. Stefan Bogdanov, TomislavJurendic, Robert Sieber, Peter Gallmann Journal of the American college of Nutrition 27 (6), 677-689, 2008
8. George Peterkin Meade, James CP Chen Cane sugar handbook., 1977
9. Michael Somogyi Journal of biological chemistry 195 (1), 19-23, 1952 George Peterkin Meade, James CP Chen Cane sugar handbook., 1977
10. HepsibJ.hhamman composition and application of aloe vera leaf gel. Of department of pharmaceutical sciences 2008 .13, 8 .1599-1616
11. ah. P.t.a. Rosamma, m.p. And sanjeevkumar, p. Standardisation of murivenna and hemajeevatitaila. Ancient science of life
12. 12 . 3 ,4 ,428 – 434. 12. V.mjimenzerpatriciaesqivel function and properties of coffee and coffee by products. Food research international .2012 46 2. 488-495
13. Charles da, augustine a, gopi s, varma k, anjanasn, 2017.?Novel cosmeceuticals from plants— an industry guided Review?, journal of applied research on medicinal and Aromatic plants 7, 1- 26.
14. Belladka, nanjwadebk, kamblems, srichana t, idrisnf, 2017. ―development ofcosmeceuticals?, world journal of Pharmacy and pharmaceutical sciences 6, 643-691.
15. Cavinato m, 2018. ―cosmetics and cosmeceuticals?, research Institute for biomedical aging research. Innsbruck, austria. Elsevier-encyclopedia of biomedical gerontology,